

**Channel Tunnel Rail Link  
London and Continental Railways  
Oxford Wessex Archaeology Joint Venture**

**Building material, fired clay and wall plaster from  
Thurnham Roman Villa, Kent**

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## 1 INTRODUCTION

### 1.1 The site

As part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL), Oxford Archaeology (formerly Oxford Archaeological Unit) was commissioned to undertake an excavation at the Scheduled Ancient Monument (SAM KE 299) of Thurnham Roman Villa (OS NGR 579950 157110) and trench excavation of earthworks located in the adjacent Honeyhills Wood near the village of Thurnham in Kent. In addition, a watching brief was undertaken on the surrounding CTRL route section from Sittingbourne Road, Detling, to Crismill Lane, Thurnham. In the course of the watching brief, a concentration of archaeological features was encountered to the east of Hockers Lane, near Detling (OS NGR 579200 157485).

Evidence for permanent settlement first appears in the Late Iron Age, first at Hockers Lane, followed by the establishment of a large enclosed settlement at Thurnham. Activity at Hockers Lane consisted of a sequence of curving gully enclosures. Little physical remains of structures survived within the enclosed area, although a fairly large material culture assemblage points to probable domestic occupation from the second half of the 2nd century BC at the earliest, extending up to the conquest period but probably not much beyond.

Occupation at Hockers Lane may have been succeeded by, or slightly overlapped with, the earliest settlement at Thurnham. This consisted of a large rectilinear enclosure of two phases, containing traces of two roundhouses and two four-post structures, occupying an area of raised ground. The rectilinear enclosure was modified and extended *c* AD 60. At the same time a Romanised proto-villa building, with a tiled roof and painted plaster walls, was constructed as the settlement focus, complimented by a similar-sized possible temple building to the south. The pottery and other finds from this period hint at continuity of site ownership or tenure on either side of AD 43. Outside the enclosure, another possible religious or ritual focus was present, in the form of a massive free-standing post, raised on the approach to the entrance. The structural changes at this time were accompanied by a large increase in the quantities of charred cereal remains deposited in features, indicating an intensification of agricultural production at the site.

A larger stone built villa replaced the proto-villa structure in the early 2nd century, and the enclosure was extended and modified at the same time. The stone villa was built over the top of the Iron Age enclosure ditch, which was deliberately in-filled. The replacement enclosure boundary was defined by substantial fences that enclosed the rear and side of the villa building. Slightly after the completion of the villa, an aisled building of similar dimensions was constructed to the north-east. The enclosure was also extended to the north,

beyond the limit of excavation, and an evaluation trench in this area suggests that a further building may exist here.

The possible temple was demolished in the later 2nd century, and a large gated entrance was added, roughly central to the axis of the villa. Possibly as part of these changes, or shortly after, a small bath house was added to the southern end of the villa and a large square extension, with a forward projecting apse, was added to the northern end. Relatively good dating evidence places this work in the last quarter of the second century. Further development included the construction of a 14-post timber agricultural building outside the core enclosure.

No further structural additions were made after the early 3rd century, and later activity at the site is characterised by a distinct change in the character of occupation. None of the boundaries were maintained and the bath house was either demolished or allowed to collapse by the late 3rd century. At this point the central room of the villa was converted into a small smithy that was probably engaged in the recycling of collected scrap iron. The aisled building was no longer standing by the turn of the 3rd century and appears to have been deliberately demolished. However, the estate apparently continued to act as a focus of agricultural production, as a corn drier was built on the site of the 14-post building in the later Roman period. This feature appears to have been the main focus of activity on the site, particularly in the later part of the 4th century and produced large assemblages of associated charred cereals. Combined with the general paucity of clear domestic occupation and associated finds assemblages, these developments suggest that the villa ceased to function as a high status occupation site, possibly being subsumed into a larger estate by this time. A large oven within the main villa building is the only clear evidence for late Roman domestic occupation. The area of the corn drier seems to have provided the focus for continued ritual activity, as wild animals were deliberately buried in the shaft of a well.

There is no evidence for occupation or land-use after the start of the 5th century, until the establishment of Corbier Hall moated manor (SAM KE 309) on the low lying ground to the east of the former villa. Evidence from this area includes peripheral features of the manor, containing artefacts of 12th to 13th century date. The moat ditch was maintained into the post medieval period and incorporated into a system of post-medieval land drainage ditches. Post-medieval land use was characterised by pasture and woodland, until the intensification of arable farming after the Second World War, when all upstanding features of Corbier Hall and the surrounding woodland were removed and levelled.

## **1.2 The assemblage**

The overwhelming majority of the building material (some 11260 fragments weighing 884.2 kg) is ceramic roofing tile. Excluding tiles of uncertain form, roofing tile accounts for 93.2%

by fragment count (90% by weight) of the total ceramic tile assemblage. Both tegulae and imbrices are present but no ridge or other roofing tile types. This suggests that the roof crest was covered with imbrices and not with purpose made ridge tiles. This seems to have been the standard practice in London and many other areas of Roman Britain.

The other ceramic tile types present are brick: 5.5% by fragment count (8.4% by weight) and combed flue and voussoir tile, amounting to 1.3% by fragment count (1.6% by weight). There is also a considerable number of small ceramic tile fragments which are too small to identify the form type, but it seems likely that most are roofing tiles.

## 2 ROMAN CERAMIC BUILDING MATERIAL

### 2.1 Fabric

Four major Roman ceramic building material fabric types were identified using a low power binocular microscope, together with four other types, although three of latter were only represented by single tiles, the fourth by two examples. All are referred to by their Museum of London fabric reference numbers.

These numbers relate to a fabric collection held in the Museum of London's Archaeological Archive Research Centre. Although this collection principally includes tile fabric present in the London area, certain Roman fabric types are found over a wide area of south-east England. This indicates that despite its weight and bulk during certain periods Roman tile was evidently moved over considerable distances (Betts and Foot 1994, 33).

#### ***Fabric group: 2815***

This is a general number given to red and occasionally orange and brown firing tiles with varying amounts of quartz found in the London area. It comprises four individual fabric types, three of which are represented at Thurnham (fabrics 2454, 2459A and 3006). Most tiles in fabric group 2815, which date to around AD 50-160 in the London area, probably derive from tile kilns situated along Watling Street between London and St Albans (Verulamium), although there is now evidence of tile manufacture in the St Paul's area of London around AD 60-100. It is not possible to say with any certainty where the tiles used at Thurnham were made, although somewhere in the London area is a possibility. Such tiles could have been brought from London as a return cargo for the Kentish Rag limestone being quarried in the Maidstone area and shipped via the Medway up the Thames.

2454

Fairly fine fabric with small but varying amounts of quartz (up to 0.5 mm), usually with a scatter of calcium carbonate, siltstone and iron oxide (up to 2 mm).

2459A

Fine sandy fabric with abundant small quartz inclusions. Few quartz grains above 0.2 mm in size. Occasional scatter of calcium carbonate and iron oxide (up to 1 mm). The letter 'A' denotes normal size moulding sand, later types (not found at Thurnham) are denoted by other letters.

3006

Tiles in this fabric range from slightly sandy to very sandy. Most have frequent quartz (up to 0.3 mm), with occasional iron oxide and calcium carbonate.

***Fabric types: 2454, 2455***

Many tiles in these fabric types at Thurnham are cream or pink in colour, whilst others are white or light orange. They are believed to have been made in the Eccles area of north-west Kent. In London such tiles are dated around AD 50-80, although there is evidence of later manufacture at Eccles. One relief-pattern box flue tile from the Eccles villa is keyed with dies 12 and 16 dated to the early-mid 2nd century (Betts *et al*, 1994, 21-22) whilst a tile kiln discovered in the vicinity of the villa is dated to the late 2nd century (McWhirr 1979, 158). However, there is no clear evidence for the import of Eccles area tile into London after the 1st century suggesting that most of the later tile production was primarily used for the construction of Eccles villa itself. This would also account for its replacement by red coloured tile from other production sites in the later phases at Thurnham.

2454

Usually hard, well fired fabric. Varying amounts of normal or 'rose' (red) quartz (most up to 0.5 mm), plus a scatter of iron oxide (up to 2 mm). Occasional pink clay lenses in certain tiles.

2455

A variant of 2454, almost certainly from the same source. A fine, smooth clay with only a scatter of quartz and calcium carbonate inclusions. Only two tiles in this fabric were found, both small fragments of uncertain form (contexts 15179, 12540).

***Fabric type: 3019***

In London this fabric is commonly used for bricks, as is the only example in this fabric from Thurnham. The fabric is similar to that found at Braxells Farm, Hampshire but it is not certain

where the Thurnham tile originates. In London tiles in fabric 3019 are provisionally dated to AD 100-120.

Description: Light brownish-orange. Common siltstone inclusions (up to 7 mm) and iron oxide (up to 4 mm). Scatter of quartz (up to 0.3 mm), and occasional calcium carbonate. The Thurnham example has fine moulding sand.

***Fabric type: 3023B (near 3028)***

The tiles in this fabric in London may come from Hertfordshire, but the Thurnham example has less quartz inclusions so its origin is uncertain. There is no precise dating for tiles in fabric 3023B in London but they appear to have been in use sometime around the mid 2nd to mid 3rd century.

Description: Orange. Common quartz (up to 0.3 mm) and small black iron oxide grains (up to 0.1 mm) with scatter of red iron oxide and cream silty inclusions (up to 1 mm) scattered through the clay matrix.

***Fabric type: 3095***

Production source unknown. Found in London associated with pottery dated AD 50-160 (Pringle 2002, 159).

Description: Pink. Common, very coarse, white rounded and angular calcium carbonate inclusions (up to 5 mm). Occasional quartz (up to 0.3 mm) and iron oxide/clay inclusions (up to 3 mm).

***Fabric type: 3226***

Production source unknown.

Description: Mainly orange or light brown, occasionally red. Common rounded iron oxide (up to 4 mm). Varying amounts of quartz (up to 0.6 mm), and silty lenses and inclusions (up to 5 mm), Occasional sandstone rock fragments (up to 5 mm), and some calcium carbonate (up to 2 mm) in certain tiles. Normally fairly coarse moulding sand.

***Fabric type: 3238***

Production source unknown.

Description: Mainly orange or light brown, occasionally red. Occasional to frequent silty bands and rounded silty inclusions (up to 3 mm). Scatter of red iron oxide inclusions (up to 1.5 mm). Often has moderately fine moulding sand.

Some tiles have fabrics which lay mid-way between types 3226 and 3238 which suggests that both fabrics may have come from the same tilemaking area, or represent different phases of production at a single tiler.

## 2.2 Form

The general term ‘tile’ is used to cover all Roman ceramic building material. Individual form types are either brick or various types of tile used as roofing and cavity walling.

### *Roofing tile*

Fabric group 2815, fabrics 2454, 3226, 3238

Despite the large quantity of roofing tile recovered the number of complete and semi-complete tiles is disappointingly low. There is a single complete tegula and a number of complete imbrices which, because of their curved shape, rarely survive intact on Roman sites unless used for some other purpose such as drains (Table1). At Thurnham two examples (red fabric group 2815) survive due to being deliberately buried in the ‘votive’ pit (10570). Another (cream-pink fabric 2454), more unusually, remained intact despite being used as tile debris to level a ditch (subgroup 12545, context 10935). However, the backfill of this ditch largely consisted of sizeable roof tile fragments and near complete or even complete examples clearly indicating that the material had been subject to minimal movement from roof to ditch. The only other large or near complete imbrex occurs as a drain built into the eastern wall of the temple (subgroup 12720, context 11380). Imbrex tiles were also used as a drainage channel in the base of the western and eastern apse of the bath-house excavated in 1958 (Pirie 1960, 164-5).

All the more complete roofing tiles are listed in Table 1 by feature subgroup and individual context. Two end measurement are given for the imbrices as such tiles taper inwards from the bottom edge to allow the tiles to interlock on the roof. In some cases only the tapered middle section survives.

*Table 1: Roofing tile size*

Subgroup/Context	Fabric	Length	Breadth	Thickness
Imbrex				
12545 / 10935 (No. 1)	2454	428 mm	159 to 196 mm	20–31 mm
12720 / 11380	2454	-	? to c 201	14–17
10570 / 12347 (No. 2)	2815 (type 2452)	430	139 to 202	16–26
10570 / 12347 (No. 3)	2815 (type 2452)	428	150 to 203	13–24
10610 / 10604	2815 (type 3006)	c 298	-	22–25
11500 / 11461	2454	-	170 (middle area)	16–24



Subgroup/Context	Fabric	Length	Breadth	Thickness
12545 / 10935	2454	-	157 to 160 (middle area)	20–28
12545 / 10935	2454	-	175 (middle area) to 198	13–23
12545 / 11641	2454	-	158 (middle area) to 177	17–31
20400 / 20175	2454	-	163 to ?	16–19
Tegula				
12545 / 10935 (No. 4)	2454	472	326	23–37*
12545 / 10935 (No. 5)	2454	-	324–327	24–33*
20080 / 20131 (No. 6)	3226	445	-	21–25*

\* excludes flange area

Most of the complete and partly complete imbrices are of similar length and breadth (Table 1). The only exception is the imbrex from the boundary (subgroup 10610) ditch north-west of the villa which is markedly smaller in length. However, the end of this tile is abraded so it is not certain if this is the tile's true length.

Two tegulae in fabric type 2454 have nail holes present, a feature not normally associated with cream-pink tiles of this type. The large size and heavy weight of complete tiles of this fabric meant that nails were not normally required to attach them to the roof. It is possible that only the lowest tile course overhanging the eaves was attached by nails for additional stability.

One tegula (context 10861) has a roughly square nail hole measuring 9 x 10 mm added before firing. This was probably positioned near the bottom of the tile as it partly cuts a signature mark which were normally added to the bottom edge. Tegulae with nail holes in this position frequently have a second hole near the top edge. The other nail hole occurrence is round in shape measuring 7 mm in diameter (subgroup 11640, context 11350). Unlike the first, this hole was probably added after the tile was fired.

A feature of some tegulae in fabric 2454 is their unusually large thickness. Excluding the flanged areas, tegulae are rarely thicker than 30 mm, but some of the Thurnham villa examples are 33–38 mm thick, which makes it difficult to differentiate fragments of them from certain thinner types of brick. In contrast what appears to be a red tegula in fabric group 2815 (type 2452) is unusually thin at only 14–16 mm, although it is just possible the tile could be the plain side of a box-flue.

### *Brick*

Fabric type: fabric group 2815, fabrics 2454, 3019, 3023B, 3095?, 3226, 3238?

The majority of bricks are in fabric type 2454 with lesser quantities in fabric group 2815. There are also two bricks in fabric 3226 and a solitary example in fabric 3023B. The examples in fabrics 3019 and 3095 are probably bricks, although it is possible they could be thick tegulae.

Different brick types used in Roman Britain can be classified according to size. Unfortunately, no Thurnham bricks have surviving length or breadth measurements so it is not certain what class or classes of brick are represented. The majority of bricks are in either fabric group 2815 or fabric type 2454 and measure between 26-61 mm and 36-64 mm in thickness respectively. Most are, however, below 56 mm in thickness which suggests they could be bessalis, pedalis or lydion bricks. Bessales and pedales were mainly used to form pilae stacks, whilst lydion bricks, which had a wider variety of functions, were often used as tile courses in walls.

Bessales and pedales in fabric type 2454 were certainly used at Maidstone villa, measuring 184-224 mm square (28-57 mm thick) and 293-324 mm square (35-42 mm thick) respectively. There are also red bessales bricks measuring 189-195 mm square by 30-35 mm in thickness.

It is possible that the surviving building material assemblage gives a distorted picture of brick use. In later Roman Britain bricks were frequently stripped from walls and other structures for reuse elsewhere whilst tegulae were often either left or had their flanges knocked off for reuse as walling. The reason for being left is that later Roman roofing tiles are frequently smaller and thinner than their 1st- mid 2nd century counterparts and so could not be easily used together on the same roof. If Thurnham villa was plundered for building material after abandonment the surviving assemblage may therefore under-represent the percentage of bricks which were originally present.

One interesting feature of the bricks, and possible bricks, is the presence of more unusual fabric types. There are only single examples of fabric types 3019, 3023B, 3095 at Thurnham and all are present as bricks. In the London area tiles in fabric 3023B cannot be dated more closely than the mid 2nd to mid 3rd century but would seem to have been made after manufacture of tiles in fabric group 2815 and fabric 2454. If the same is true at Thurnham then the brick in fabric 3023B, found in a late 4th century infilling of an oven (20036) within the villa may have been brought in to help complete the final major structural alterations to the building during the mid to late 2nd century. The probable bricks in the other two fabric types could have been used during the same period.

#### *Cavity walling*

Under this heading are box flue, voussoir and possible half box-flue tiles. Their purpose was to create a cavity through which heated air from a hypocaust could be circulated up through

the building. The majority of tiles used as cavity walling appear to be box-flue tile in fabric 3226, although it is not always possible to differentiate small fragments from voussoir tile. The primary use of the box-flue and voussoir tiles at the site is likely to have been within the walls of the stone villa building and particularly within the bath-house range although none were present in such contexts. All those encountered were found in secondary reused circumstances such as a possible hearth base within the smithy room (20000) or as building rubble surrounding the collapsed corn drier (10340).

#### *Box-flue*

Fabric group 2815, fabric 3226

The box-flues in fabric 3226 have keyed front and back faces with plain sides. Keying was undertaken with at least three combs, one with five teeth, one with six teeth and another with eight. There is no indication as to tile height (over 257 mm) but one combed face measures 150-155 mm in breadth, whilst a plain side has a breadth measurement of 108 mm. Tile thickness varies between 18 and 24 mm. This is almost identical to another fragment of flue tile in the same fabric from Thurnham villa now in Maidstone Museum (Box ref. R.B 148/7) which has a combed face 146 mm in breadth by 18-21 mm in thickness.

It would seem that the tiliary making these flue tiles was also supplying tile for building operations at the nearby villa at Eccles. A fragmentary box-flue from that site has a combed face 149-150 mm in breadth with a thickness of 19-22 mm.

The flue tiles in fabric 3226 have vent holes in their plain sides. The Eccles example discussed above appears to have had a rectangular shaped vent hole, but the Thurnham examples are of a more unusual type. None is complete but they appear to comprise two triangular shaped holes touching at one corner. Similar shaped vents are present on box-flue from Bignor, West Sussex and Guildford, Surrey (Brodrigg 1987, 75-76, Fig 33a).

The only other box-flue tiles from Thurnham are two combed tiles and one possible plain face in fabric group 2815 (type 3006 near 2452).

#### *Voussoir*

Fabric 3226

The definite voussoir tiles, all of which are in fabric 3226, were found reused within the smithy (room 20000) of the villa (context 20115). It is difficult to reconstruct their size, but two tiles have one almost complete face measuring approximately 206-211 mm square, whilst a second face (perhaps the opposing end) measures *c* 155 mm by 199 mm. Keying is present on all three tiles having been added with a six toothed comb.

Voussoir tiles can often be distinguished by the presence of keying on adjacent sides, the partly complete smaller face discussed above has this feature on one edge, as does one of

the probable voussoirs from ditch subgroup 11090. This was found with a another combed fragment with part of a circular vent hole. This and a similar tile with a 55 mm diameter hole in a combed face, found in an earlier excavation at Thurnham (Maidstone Museum Box ref. R.B 148/7), are both probably voussoirs.

### *Half-box flue?*

Fabric 2454

There are four tiles that have scored lines in their bottom sanded surface, some or all of which could be deliberate (contexts 11044, 11318, 12455, 15279). These are of roughly the same thickness as tegulae (around 26 mm), which means that they are unlikely to be box-flues or voussoirs. It is possible that some or all may be the remains of half-box flue tiles, the most convincing of which is illustrated here. Such tiles were certainly made in fabric 2454 as a number have been found in London and they all have knife keying on their base.

Half-box flue seem to be an early Roman tile type dating to around AD 40-70. If such tiles were used as Thurnham then they would presumably have been used in a heated room in the proto-villa. However, until the presence of half-box flue can be confirmed such an interpretation should be treated with caution as it is possible that the score lines could have been applied to some other tile type.

## **2.3 Markings**

Most large Roman tile assemblages display a selection of deliberate and accidental markings and the Thurnham material is no exception. In the former category are signature marks made with the tips of the fingers and tally marks cut with a sharp knife. The accidental marks comprise hoof and paw prints, both commonly found on tile in Roman Britain. Signature and tally mark types have been catalogued by the Museum of London for over 20 years and it is the Museum's catalogue numbers which are given below.

### *Signature marks*

Most, if not all tile production sites added signature marks to the top surface of bricks and tegulae before firing. Similar marks were also occasionally added to other tile types. Each type is believed to represent the individual mark of the tilemaker, so such marks could then be use to check the output of each tilemaker. Not every tile is signed so only a set proportion of tiles were marked in this way.

One puzzle concerning signature marks, which has yet to be satisfactorily resolved, is why tileries operating the length and breadth of Roman Britain often chose semi-circles with between one and four lines, or a simple loop shape with one or two lines, to sign most of their tiles. The same pattern can be see on the various fabric types found at Thurnham. A wide

variety of different signature mark shapes are found on Roman tiles in Britain so it is not clear why, in many cases, the semi-circular and loop types were used in preference to other types.

The signature mark types found at Thurnham are listed in Table 2. For greater accuracy the markings in fabric group 2815 are always classified by their individual fabric types (2452, 2459A, 3006). Signature mark type 72 has not previously been found in fabric 2452.

*Table 2: Signature mark types*

Fabric	Signature catalogue no.	Amount	Comments
2815 fabric group:			
2452	1	1	One semi-circular line
2452	2	3 (plus 1 uncertain mark)	Two semi-circular lines
2452	72	1	No.15
2459A	1	1 (plus 1 uncertain mark)	Two semi-circular lines
3006	1	1	One semi-circular line
3006	2	1 (plus 1 uncertain mark)	Two semi-circular lines
3006	3	1	Three semi-circular lines
3006	8	1	Three lines in horseshoe shape
Other fabrics:			
2454	1	11 (plus 7 uncertain marks)	One semi-circular line, Nos. 4 and 5
2454	2	10 (plus 2 uncertain marks)	Two semi-circular lines
2454	4	2	Straight line sloping left
2454	6	5 (plus 1 uncertain mark)	Single line loop, No. 7
2454	7	1	Curved line sloping left
2454	8	1	Three semi-circular lines
2454	?	1	To small to identify
3226	1	1	One semi-circular line, No. 14
3226? (near fabric 3238)	2	1	Two semi-circular lines

### *Tally Marks*

Tally marks are knife cut lines found on the edges of tiles, normally bricks or tegulae. In addition such marks are also occasionally found on the top flange area of tegulae. Their meaning is not always clear, but many would seem to represent Roman numerals.

Tally marks are much rarer than signature marks and are believed to identify batches of tile ready for firing. Perhaps tally marks were used to identify each day's output. Certainly a well run tilery would have had to have some sort of stock control method to identify when each batch of tiles was made, to ensure that they were sent for firing only after they had been given sufficient time to dry. One probable (fabric 3226) and two definite (fabric group 2815)

tally marks were found at Thurnham, the probable one on a side of a brick and the others on the edges of tegulae. One tegula has a tally mark type not previously found on tiles of that fabric. Each tally mark is listed in Table 3.

*Table 3: Tally mark types*

Fabric	Catalogue no.	Amount	Comments
2815 fabric group:			
2452	2	1	X shape, No. 15
3006	17	1	/II shape, No. 16
Other fabric			
3226	1	1	// shape, No. 17

## 2.4 Animal prints

Four tiles have animal prints which were added when animals walked over tiles laid on the ground prior to firing. Three have hoof prints, whilst a fourth has a paw print. Somewhat surprisingly all are in fabric 2454, perhaps suggesting that a more rigorous effort was made to prevent animals walking on the tiles at the other tileries supplying Thurnham villa.

## 3 ROMAN STONE BUILDING MATERIAL

In addition to the stone associated with the various buildings, which mainly comprises Kentish ragstone and flint, various small fragments of other stone types were found scattered on the site. However, in many cases it is not certain whether these are naturally occurring or were used specifically in building construction so they are not discussed further.

One stone type of particular note is tufa which was found associated with the villa and temple. Large blocks were also found reused with other stone types in the later Roman corn drier. Many of the larger tufa blocks have cut faces and would appear to have been rectangular in shape. Because of abrasion it is difficult to tell if any blocks have a complete length. One block with a possible complete length measures 241 mm whilst another may be 270 mm. However, there is a further block with a definite incomplete length of 394 mm. The thickness of these and the other surviving blocks is between 70-90 mm, which is similar to that of a number of similar shaped blocks from Maidstone villa measuring 79-95 mm thick.

One tufa block may be part of a voussoir from a vaulted roof or, more likely, a smaller curved niche. It is wedge shaped, measuring 88-92 mm at one edge and tapering to a point at the other, and is slightly over 156 mm in length.

## 4 ROMAN PAINTED WALL PLASTER

All of the wall plaster from Thurnham has been examined, although time constraints meant that the amount in each context has not been quantified in detail. The assemblage is relatively modest (it was present in just 15 contexts) in comparison to the amount of ceramic building material recovered and most of this derives from the proto-villa. There is, however, additional plaster found on the site in the 19th century and from the excavations of 1933 and 1958 in Maidstone Museum. Again much of this clearly comes from the proto-villa, but there are also important decorated fragments from elsewhere in the villa complex. Both the wall plaster within the archive at Maidstone Museum and that from the current excavations is discussed below. It has been grouped, where possible, by period association, design and backing type.

### 4.1 Early Roman (c AD 60 to 120): Proto-villa

The wall plaster from the proto-villa is very distinctive in having the remains of a brown coloured sandy layer attached to the base of the plaster backing layer. This makes it possible to firmly link the plaster found in 1998 with that found in earlier excavations (boxes 12A, R.B 148/1, 148/13). Unfortunately, the backing layer is unusually thin, often little more than 4-6mm, which means that it is easily fragmented. This has resulted in few large fragments surviving intact which has prevented reconstruction of the overall decorative scheme. However, enough survives to give a good impression of how the walls of the proto-villa were decorated.

As discussed above the proto-villa plaster generally has a thin cream coloured mortar backing layer. This can be as little as 4 mm in thickness, but tends to be slightly thicker towards the base of the wall, some dado plaster having a thickness of 12 mm. On the base of the cream layer is a very distinctive brown sandy layer comprising small rounded pebbles up to 10 mm in length. The full thickness of this layer is uncertain although it is up to 9 mm on one fragment. Attached to the outer face of the cream backing layer is the final white plaster layer (*intonaco*) on which the paint decoration is added. This is generally very thin, around 0.25 mm thick, although it is up to 0.5mm on individual fragments.

There are a number of pieces of plaster from the lower third of the wall known as the dado. This had rectangular shaped panels of imitation marble in at least two background colours, light grey and pink. The light grey dado panels has splash decoration in red, black, yellow and white, although on some fragments the red has a more pinkish tinge and the black spots are more of a grey colour. These differences may be due to post-depositional weathering of the plaster. The pink dado has black, yellow and white splash decoration.

The pink and grey dado areas appears to have been separated by a 8-9 mm wide vertical black band, weathered grey on one fragment. Other areas of the light grey dado may have been bordered by a 8mm grey band followed by yellow.

There is also a solitary area of dado with yellow, grey and possibly red (there are traces of red paint) on an off-white background. A further fragment shows a 13 mm grey (faded black?) band between what may be another part of this dado and that of pink background type. It is not certain if these are from a different area, or represent a very faded version of the light grey dado scheme.

Above the dado, the middle part of the decorative scheme comprised plain red panels surrounded by horizontal and vertical borders in white, green, yellow and grey. The largest area of surviving plaster from the proto-villa (context 20300), although very badly worn, appears to show the corner of a red panel bordered on one horizontal and one vertical side by a c 9 mm wide white band followed by green band at least 50 mm wide.

There are also many other areas area of plaster showing the same red/white/green border, the white band ranging in thickness from 6-9 mm. Both the white and green paint overlay the red showing that this colour was added first as a initial background colour.

On some fragments the green area overlaps the white band on to the red area. Whether this was deliberate or the product of careless craftsmen is difficult to determine. Another feature worthy of comment is the presence of yellow paint under the green area, which in turn also seems to be above the initial red background paint layer. It could be that this marks a later repainting, but the lack of such a repaint elsewhere suggests there may have simply been a change of plan during the initial painting stage. Presumably, Roman villa owners were just as likely to change there minds about the merits of using a particular colour as households today. Other panel border areas are listed below. Also found with this plaster was a red painted fragment with a curved surface, probably from a door or window opening.

Yellow/ 9 mm white band/ green

Yellow/ 7 mm black band/ red

Green/ 7 mm white band/ grey

The evidence for more elaborate decoration is limited to just a few fragments. The best of these is a small fragment from the collection in Maidstone Museum and excavated by Ashbee. This has the same backing layer and shows it certainly derives from the proto-villa. This has a small area of light green foliate decoration on what appears to be green, although the surface is partly discoloured. This is presumably the plaster described by Ashbee (1986, 154) as having a spray of leaves in green, although he describes that background as cream. There are also areas with slightly curved and jagged white lines. It is not certain if these areas of



poorly painted white bands bordering red panel areas are decorative elements. What does seem certain is that any decorative elements must have been restricted to relatively small parts of the overall scheme. The green foliate plaster may well have been a decorative border between plain red panels. The use of decoration in between plain rectangular panels is a common Roman decorative technique, similar examples are illustrated by Davey and Ling from Colchester, Verulamium (St Albans), Catterick and Wanborough (1981, 92, Fig 11, 100, Fig 15, 190-192, Figs 50-51). Alternatively, the green foliate plaster may come from the upper part of the wall above the panel areas, or perhaps even the ceiling.

#### 4.2 Middle Roman (phase 1 and 2 c AD 120 to 250)

Excavations in 1958 of the bath house range attached to the south west end of the villa building produced numerous fragments of red and white and plain white wall plaster from two rooms of the bath suite (Pirie 1960, 164-5). No decorated pieces were recorded in direct association with the bath house although a number of fragments with border areas as well as two pieces with decoration are present in the archive (boxes R.B 148/4-148/12). The provenance of these remains unclear and some of these may have derived from the rooms of main part of the villa complex to the north. However, the 1958 excavation of the villa was largely confined to the bath house range and this remains as the most likely source.

The plaster has a white *intonaco* of varying thickness, from 0.25 mm on some fragments to 2 mm on others. This rests on a cream coloured mortar backing layer generally around 8-17 mm in thickness. One plain white fragment has occasional crushed tile in the mortar backing, whilst a plain red and a plain light grey fragment have, what appears to be, two cream mortar backing layers. These comprise an initial layer around 10-17 mm thick followed by a upper layer 12 mm thick and a white *intonaco* 0.25 mm in thickness. It is possible that there may be a paint layer between the two indicating a repair or replastering, although this is not certain.

The plaster comprise the following panel border areas:

White with faded c 11 mm wide red band

White (now discoloured cream) with 5 mm wide yellow band

White/ 4 mm wide red band/ dark red

The dark red area curves upwards indicating it comes from a window or opening. This has two creamish-white mortar backing layers, an initial layer 11mm thick covered by a second layer 11-15 mm in thickness. There is also a small corner area in grey bordered by red along one side and area of white at 90 degrees to the red.

Small fragments of two more elaborate decorative schemes are also present. The first has what would appear to be a stems of a floral design in creamish-yellow on a red background. The other comprises what appears to be a decorative border area in black, brownish-yellow, pink, dark red and cream. These probably derive from different rooms as the first has a creamish-light brown mortar backing layer 30-32mm thick whilst the second has a white mortar backing layer 14-21 mm thick with occasional crushed red tile.

From what may be a separate room or wall area of the villa come border areas in red/ white and red/ grey painted above a crudely smoothed surface. The white area is now discoloured to a cream colour.

The most elaborate wall plaster was found in Box 12A at Maidstone Museum. It is not certain if this was collected during the 19th century or was found during Ashbee's excavation in 1933. It is very different from that used in the proto-villa so again probably derives from the walls of the main villa building. The plaster assemblage is far too small to attempt to reconstruct any sort of decorative scheme but the surviving fragments do show that there was some sort of elaborate decorative pattern present along the vertical and horizontal panel border areas. The plaster in this group has a white coloured mortar backing layer, generally around 23-27 mm in thickness with a white intonaco 0.25-1 mm in thickness. The decorative plaster shows an elaborate scheme in white, blue, pale purple and dark red on a pink background, whilst another fragment shows red decoration on a white background. Found associate with this plaster were border areas in the following colours:

Red/ 7 mm wide white band/ dark red

Red/ 11 mm wide dark red band /discoloured white or yellow

Red/ 10 mm wide dark red band/ yellow

Black/ c 9.5 mm wide white band/ colour? (abraded)

White (band?)/ 18 mm wide red band/ 2.5mm wide white band/ red

There are also red and dark grey fragments with what appears to be the remains of a curved white band separating the two colours. What is conspicuously absent are fragments of just one colour which suggests that what survives is a bias selection of the plaster than was actually found. It would seem the plaster fragments of just one colour were not collected.

## 5 DISCUSSION

### 5.1 The Roman ceramic building material

The earliest ceramic building material on site were the cream-pink coloured roofing tiles (fabric 2454) from the Eccles area of Kent located 9 km north-west of Thurnham villa. A small quantity of non-local brick was brought in during the same period although it is not absolutely certain for what purpose.

The cream-pink tiles were almost certainly used to roof the newly built proto-villa and temple. Later repair and alternations to both buildings seem to have been carried out in different coloured tile. A small amount of red roofing tile (fabric group 2815), perhaps from the London area, was found associated with the proto-villa together with single orange-brown coloured tegula in fabric 3226, although this could have been used elsewhere (see below). In the London area imports of cream-pink tile from the Eccles area appear to have ceased around AD 75/80. If the same is true in this area of Kent then presumably the employment of red coloured roofing tile on the proto-villa dates to after *c* AD 80 when fresh supplies of cream-pink tile were no longer available, but before *c* AD 120 when the stone villa building was constructed. Red roofing tile in fabric group 2815 was certainly available in the London area by AD 70, with production continuing to around *c* AD 160.

A slightly nearer source of red coloured tile with a similar range of individual fabric types to that seen in the London 2815 group is Canterbury, 36 km to the east (pers. comm. Louise Harrison). Tiles of this type were excavated at two production sites, Whitehall Gardens and St. Stephen's Road. Both seem to have been in operation during the 2nd century, the Whitehall Gardens kiln being dated to AD 130-140 (McWhirr 1979, 152-6).

The cessation of cream-pink tile production may also explain the presence of small amounts of orange-brown coloured (fabric types 3226, 3238) and red coloured roofing tile (fabric group 2815) associated with the temple. Tiles in fabric types 3226 and 3238 are not well dated, but what dating evidence there is indicates that they were used around AD 70-100, which is contemporary with the infilling of ditch 10660 in which they were found. Again this would suggest that these orange-brown and red coloured roofing tiles were added to the building some time after AD 70. How long after is not certain, although on the dating of the ditch fill this is unlikely to have been much later than around AD 100.

The temple roof repairs or alterations using red tile in fabric group 2815 may well have been contemporary with the changes to the proto-villa, but the use of roof tiles in fabrics 3226 and 3238, which are largely absent from the proto-villa, presumably marks a separate phase, or phases, of rebuilding or repair.

Associated with roofing tile believed to derive from the temple are various fragments of grey coloured tufa in ditches 10660 and 12545 which presumably also derive from the temple. Tufa is a fairly soft grey coloured stone found in limestone and chalk areas which was often used in Roman roof vaulting due to its relatively light weight. A wedge shaped fragment found reused in the walls of the 4th century corn drier (10340) could have been used in a roof vault. Tufa was used for this purpose for example at Pulborough, West Sussex (Williams 1971, 174), but the shape of the wedge suggests that it probably came from a smaller curved niche.

The primary stone villa constructed around AD 120 was roofed in red tile (fabric group 2815). It is possible that orange-brown coloured tiles in fabric 3226 and 3238 were also used, along with some of the cream-pink tegulae and imbrices (fabric 2454) which originally covered the proto-villa. The latter may have been reused in a specific area of the villa roof or have been mixed with the red and orange-brown coloured tiles to create a decorative effect. However, such a decorative effect would only have been possible if the red or orange-brown coloured roofing tiles were made to the same size as the cream-pink examples in 2454, otherwise they could not have been used together on the same area of roof.

Tufa was used to form the quoins of the inner walls of the bath-house attached to the villa (Pirie 1960, 163-4). It could also have been used for a similar purpose in the wall of the temple, although the *in situ* wall courses of this structure suggest large blocks of roughly shaped ragstone provided this role rather than tufa. Carefully shaped tufa blocks were apparently also used in the walls of the aisled building.

It would appear that red tiles in fabric group 2815 were also used to cover the roof of the aisled building constructed within the middle Roman period *c* AD 120-150. There are also orange-brown roofing tiles in fabrics 3226 and 3238 and a small amount of cream-pink tile in fabric 2454 from a tile deposit (context 15272) sealing the upper levels of the occupation/post occupation within the western end of the building and from silts sealing the well to the north west of the building. As all three fabric types seem to predate the construction of the aisled building these tiles were presumably brought from elsewhere on the site for uses other than roofing. The well deposits (subgroup 12370), for example, contain box-flue tile (fabric 3226) which almost certainly derive from the stone villa as there is no evidence that such tiles were ever used in the aisled building.

Relatively few bricks were found, possible because such items were often taken away for reuse, particularly during the late Roman period and in subsequent post-Roman robbing. A considerable number were, however, found in demolition rubble outside the north-west end of the aisled building. These presumably derive from the aisled building, but how and where they were used is not certain.

A number of combed box-flue and voussoir tile were found in Room 20000 and in the backfill of the oven (20036) of the final period of activity within the villa building. These almost certainly represent the remains of a hypocaust heating system which once transported heated air up the walls and through the roof of the villa. It is not possible to say which rooms were heated, although the south-west bath suite certainly would have been. This is probably the most likely location for the vault or vaults containing the voussoir tiles. The 1958 excavation of this area produced a number of fragment of flue tile (Pirie 1960, 164).

The majority of box flue and voussoir tiles are in fabric type 3226 which is provisionally dated to around AD 70-100. They were presumably added when the first villa was constructed *c* AD 110-120. The demolition deposits in the same room also contain a combed box-flue in fabric 2815. As tiles in this fabric group were produced until at least the mid 2nd century in the London area and at Canterbury it seems likely they are a later addition at Thurnham. It is possible they were added during the structural alterations to the villa in the mid-late 2nd century.

The late 3rd century deposits in Room 20000 also produced various fragments of tufa. However, these occur as reused items in secondary contexts along with the box and voussoir tile fragments and are unlikely to have been directly associated with the fabric of this room. A number of roofing tiles, mainly red tile in fabric group 2815 with smaller quantities in fabrics 2454 and 3226, were also present. If the roofing tile derives from the villa this suggests that the roofing material covering the villa was essentially same as when the stone villa was first built. There is certainly no evidence for any later roofing tile fabric types, such as those of the calcium carbonate group dated from AD 140-180 to the late 3rd century found at Dere-ton Street villa, and Each End, Ash, Kent (Betts 2001; Betts and Foot 1994, 32; Harrison 1998, 151, fabric 16). Indeed, there is a striking lack of any tile which can be assigned to the later Roman period from anywhere at Thurnham suggesting that very little construction or repair was undertaken after the mid-late 2nd century addition of the bath-house. Any later structural work would therefore seem to have been confined to the reuse of earlier building material already available on site.

A considerable quantity (15 kg) of red roofing tile in fabric group 2815 was used as post-packing in the 14 post building (subgroup 11250), and further red tile was found in the associated ditch and gully fills. It is possible therefore that the building had a red tiled roof although the quantities recovered from the surrounding ditches was less than that used as post-packing. Alternatively this may suggest that only broken waste or rubble tile was available at the time of construction rather than complete examples that could have been used effectively for roofing; a fact perhaps emphasised by the much larger quantity (by weight) of tile fragments present in the much earlier Eccles fabric 2454. The building was constructed around the end of the production period for the tiles in fabric 2815 (mid 2nd century). If fresh

material was being imported for the roof construction in these red tiles one would perhaps not expect to find such quantities used as packing for the posts. In contrast the aisled building had under 4 kg of tile incorporated into the packing fills of its much more substantial post pits. These facts appear to confirm that material already in use or available on site was used for the 14 post building and probably not primarily as roofing. Certainly roofing tile in cream-pink fabric 2454 and orange-brown fabrics 3226 and 3238 would have come from elsewhere on the site, as must the two probable combed voussoir tiles from the ditch (subgroup 11090) around the western and northern edge of the building.

The 4th century corn drier was clearly made from building material salvaged from elsewhere on the site. The tufa blocks probably derive from the main villa complex or possibly even the aisled building, whilst the combed box flues from the rear exterior of the corn drier are most likely to be from the villa. The coincidence of the suggested collapse or demolition of the bath-house range and the construction date of the corn drier in the mid to late 3rd century makes this the most likely source for the materials used in the corn drier.

There is no definite medieval building material, although some of the peg tile could be of this date. However, it seems more likely to have derived from a post-medieval agricultural building along with the post-Roman bricks present on the site.

It is clear from a brief examination of other sites in north-west Kent that the Roman tileries supplying Thurnham were also supplying tiles for building projects elsewhere. The 1st century cream-pink coloured tiles (fabric 2454) were also used at other Roman villas such as The Mount, Maidstone (Harrison 1999, 130, fabric 8), Deerton Street situated between Sittingbourne and Faversham and at Eccles villa itself when they are believed to have been made. Small quantities are also known from a villa at Ebbsfleet, Kent and tiles in the same fabric were used extensively in Canterbury and London. Similarly, the tilery supplying the orange-brown coloured tiles in distinctive fabric type 3226 also supplied the Roman villas at Maidstone (*ibid*, fabric 4), Eccles and Ebbsfleet. Red tiles in fabric group 2815 are also widely distributed in north-west Kent although it is difficult to say whether they originate from the same kiln source or derive from a number of production centres.

What is certain is that there is evidence for considerable movement of ceramic building material to Thurnham and elsewhere from a number of kiln sites in this part of Kent in the early Roman period. Similar large scale movement of tile, but from different production centres, is also evident in the later Roman period, but many of these tiles are in fabrics not represented at Thurnham suggesting that the requirement for fresh or new material was limited in the later Roman period.

## 5.2 The Roman wall plaster

The majority of wall plaster, which can be recognised by a second layer of distinctive brown sanding mortar backing, comes from the proto-villa. The current excavation and that by Ashbee in 1933, suggest that the three core rooms of the proto-villa were decorated with wall plaster. The uniformity of the assemblage suggests that a similar decorative scheme was used in all three of these rooms although there may have been differences in the colour of the dado and in border colours used around the plain rectangular panels. At least one room had a floral decoration in green and there are hints that there may have been another decorative scheme with white plants or flowers on a plain red background.

Most of the other plaster probably belongs to the main stone villa and wall plaster was certainly found associated with the bath-suit attached to the south-west of the building. Much of this plaster seems to have been either red or white or a combination of the two. The plaster found in the foundation of wall 20018, a late inserted internal division wall at the north-west corner of the villa (context 20254), is plain white and dark red in colour. One fragment also shows a dark red/ white border area.

However, not all the rooms in the main villa seem to have been painted red and white. The much more elaborate plaster now in Maidstone Museum presumably also comes from at least one room in the main villa. There is certainly little evidence that wall plaster was used in any of the other buildings at Thurnham. No plaster has been found associated with the temple and there is only one fragment of plain plaster found associated with the aisled building. This was found in the silt infill of a post pipe (context 15190).

As there has clearly been some movement of building material across the site it would seem more likely that this plaster was brought over in building rubble from the villa rather than having come from the walls of the aisled building. Indeed box-flue almost certainly from the villa was found dumped in the upper silts of the well (subgroup 12370) to the west of the aisled building although tufa found in association with the aisled building (subgroup 15000) may equally have been used in the fabric of this structure such as for quoins.

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## Appendix 1:

### Note on the medieval and post-medieval ceramic building material

#### *Introduction*

The small quantity of medieval and post-medieval ceramic building material recovered from the excavation has been catalogued by their Museum of London fabric numbers. The only exception are six peg tiles which are in a fabric not found in the fabric reference collection and have been given fabric a new fabric number: TV1.

#### *Roofing Tile*

A total of 23 fragments of peg roofing tile were recovered. Four fabric types are present, including one not found in Kent before (now given fabric number TV1). Most of the peg tiles were found within the silting deposits infilling the post-medieval field boundaries and drainage ditches to the south-east of the villa. It is possible that some may derive from medieval Corbier Hall, but the presence of post-medieval brick in some of the gullies (subgroups 11800, 12690) would suggest that the peg tiles are also post-medieval. They may derive from the roof, or roofs, of minor agricultural buildings.

#### *Fabric*

##### *Fabric type: 2278*

Creamy-white. Fine texture with scatter of quartz (up to 0.8 mm). Yellow or red clay bands in some tiles. Roofing tiles made from the same distinctive clay are also found at Parsonage Farm manor to the east and, in small quantities, as far as central London to the west (Betts 2006).

##### *Fabric type: 2586*

Red, orange. Clay matrix with moderate to common quartz inclusions and occasional iron oxide (up to 0.5 mm).

##### *Fabric type: 3201*

Orange, pink, cream. Generally fine fabric with common small white and cream silty inclusions (up to 0.2 mm) with occasional thin silty bands. A scatter of quartz and black and red iron oxide (up to 0.5 mm). Occasional calcium carbonate inclusions (up to 1 mm). Sometimes lenses of quartz sand.

Roofing tile in this fabric are occasionally found in central London. It resembles the products of the Naccolt kiln, Wye, north-east of Ashford, which was owned by Battle Abbey (pers.

comm. John Cotter). There is also evidence that peg tiles in the similar fabric may also have been made at Parsonage Farm manor, Kent (Betts 2006).

*Fabric type: TV1*

Orange, red. Common small black and red iron inclusions (up to 0.3 mm) with scatter of white calcium carbonate (up to 0.5 mm). Occasional small quartz can be present (up to 0.2 mm).

**Form**

The peg tiles in fabrics 2278 and 2586 have no distinguishing features. Those in fabric 3201 measure 10-13 mm in thickness and have a range of nail hole shapes. Some are square (12 x ? mm), some are diamond shaped (8 x 9 mm) whilst other are approximately round in shape (c 13 mm diameter). Diamond shaped holes are so defined when a square hole punch has been deliberately placed at a 45° angle to the tile sides. Both diamond and square holes are also found in the peg tiles in fabric TV1.

Only one substantially complete peg tile (fabric 3201) survives, this measures 148 mm in breadth by 11-12 mm in thickness.

**Brick**

A number of small brick fragments were recovered from silting fills of the post medieval drainage and boundary ditches. They presumably derive from various post-medieval agricultural structures.

*Fabric*

Three fabric types are present, all are various shades of red and orange.

*Fabric type: 3033*

Fine, often soft fabric with scatter of black iron oxide (up to 1.5 mm) and occasional quartz (up to 0.8 mm).

*Fabric type: 3046*

Sandy fabric, common quartz (up to 1.0 mm), occasional calcium carbonate. A more sandy version of fabric 3033.

*Fabric type: 3065*

Extremely sandy, often fairly soft fabric. Frequent quartz (up to 0.8 mm), occasional dark red iron oxide (up to 3.0 mm) and white flint/shell inclusions.

These fabric types closely resemble the brick fabrics found in London which are the result of using brickearths situated around the outskirts of the city. However, it seems unlikely that the Thurnham bricks were transported from London, and a more local origin somewhere in north-west Kent is more probable.